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## VARIOUS.

## Improvement in Artificial Stone, Stucco, Cement, etc.

George A. Frear, of Chicago, Ill., the patentee of this new process, describes, in the *Scientific American*, the nature of his invention, which consists in the use of an aqueous solution of gum-shellac, or its equivalent, in cementing together particles of silex, alumina, calcium, or other mineral substances, to produce, artificially, a hard and durable stone, stucco, cement, or paint, for useful or ornamental purposes.

The shellac solution is best obtained by boiling the gum-shellac of commerce in water previously made alkaline by the addition of any suitable alkaline salt in proper proportion. The proportions of shellac, alkali, and water, may, and necessarily will, vary with the strength and quality of the solution required in producing various descriptions of stones, cements, etc.

In the manufacture of artificial stones for building purposes, the patentee uses a solution, obtained by first dissolving from two to four ounces of saleratus, potash, soda, or other equivalent alkali, in about one gallon of pure boiling water, and then adding thereto one pound of gum-shellac, boiling the mixture until the gum is entirely dissolved.

A firm and durable stone, impervious to moisture, is produced by damping a mixture of about one part of lime or cement and four parts of sand or other silicious material (with or without gravel or other ingredients) with the above aqueous solution of shellac, and then firmly compressing the composition into moulds of any desired form, either by suitable machinery or by hand, with mallets or tamping rods.

The blocks or other articles thus produced will rapidly harden when removed from the moulds, and in a few days will be ready for building purposes. It is preferable to obtain the compression of the material by percussion rather than by simple pressure.

To produce a more perfect finish, the patentee contemplates washing the surface or face of the artificial stone thus manufactured, five or six days after moulding the same, with a weak solution of shellac dissolved in alcohol, ether, or spirits of turpentine (about one pound of shellac in one gallon of spirit).

Instead of using a mixture of lime, or cement, and sand to produce an artificial stone, he also contemplates moistening simple sand, clay, lime, chalk, or other earthy or mineral substances, as well as any combinations thereof, with his aqueous shellac solution, and then moulding the same, by percussion, into suitable blocks or other devices, so that endless variety may be obtained therein at pleasure.

To produce a mastic or stucco, so much of the shellac solution is added to lime, sand, clay, or any earthy or silicious material, or to mixtures thereof, that the material or mixture shall be reduced by the solution to a pasty consistency, which can be readily worked and applied with a trowel. If then applied to any surface, it will firmly adhere thereto, and upon hardening, produce a firm water-proof surface, which may be made to resemble stone so closely as not to be readily distinguished from it. By making the composition still thinner, it may be used as a substitute for paint, and it will also form a strong and adhesive cement for stone-work, etc.

Through a proper choice of the sand or other substances forming the basis of these improved artificial stones, etc., or by the use of coloring matter in connection therewith, nearly all descriptions of natural stone may be imitated, and any colors or shades of material obtained at pleasure.

In applying this improved stucco or mastic to buildings, whether of brick or stone, the surface is first washed with the aqueous shellac solution preparatory to laying on the composition hereinbefore described.

## Photography on Porcelain or Glass.

The *Builder* describes the following curious method of transporting photographs on to ceramic surfaces, patented by M. Grune. The usual negative on glass is coated with a fusible glass by the heat of a common cupelling furnace, and the image is thus protected, and positives are got from the negative by collodionising the image side of the negative in a dark room with iodised collodion; and after it is developed it appears in reduced silver. Before the collodionised surface is quite dry, a sharp point of a needle is run all along the borders, and the plate is then immersed in water containing 5 per cent. of glycerine. The film of collodion soon floats on the liquid. The film is taken out when wanted, and its silver surface changed to gold by chloride of gold, or to the appearance of steel by chloride of platinum, after which it is dipped into a solution of metallic salts, which, by the action of fire, will yield certain colors according to the operator's wish. The film is now carefully laid on the porcelain or glass to be adorned; and it sticks by means of diluted glycerine and a soft brush. It is then coated with a vitreous flux, and becomes permanently fixed in the furnace.

## Paris News.

The *Académie des inscriptions et belles-lettres* has elected the Count Melchior de Vogüé to supply the place of *académicien libre* vacant in consequence of the decease of the duke de Luynes. M. de Vogüé has acquired a well-earned reputation amongst archæologists and architects by his travels in the East, the results of which he has given in two handsome works, *l'Architecture civile et religieuse en Syrie, du I<sup>er</sup> au VII<sup>e</sup> siècle*; and *le Temple de Jerusalem*; which he published on his return in collaboration with a well known artist, M. Edmond Duthoit, architect.

By desire of the *ministère des Beaux-Arts*, the French architect employed in the re-erection of the Church of the Holy Sepulchre at Jerusalem is occupied with the execution of a plaster cast of the tomb of Philipp d'Aubigny recently discovered, the reproduction of which is intended to stand in the *Salle des Croisades* at Versailles.

## Coaguline.

This is a new transparent cement; it appears the production of operative chemists in Stockport; its adhesiveness and tenacity are said to be extraordinary. Glass, leather, wood, stone, ivory, bone, or minerals can be pieced or joined by it; and so tenacious is it that, when thus used, it will resist a strain of 224 lb. or more. Heat and cold, fire and water, are successfully resisted by it. In piecing glass or crystal with it, its transparency renders the junction imperceptible, and its adhesiveness, in fact, makes the broken glass or crystal as good as new. Its usefulness has led to the introduction of a leather line for window cords, the splice of the cord being jointed by the cement, and thus an endless, smooth, and regular band is produced. Its uses are described as being innumerable. The producers (and discoverers, we presume) of this new cement are said to be Messrs. Kay, Brothers, of Stockport, operative chemists.

*The Builder.*

## Durable Coat of Paint on Wood.

This paint, impervious to moisture, is produced by dissolving  $1\frac{3}{4}$  lb. of colophony with 48 lb. of trainoil and  $1\frac{1}{2}$  lb. of sulphur, to which is added so much of burnt ochre as is thought necessary for the requisite shade of color. The paint is applied while hot, and the process repeated a few days afterwards.